45th ANNUAL ENVIRONMENTAL SHOW OF THE SOUTH CONFERENCE & EXHIBITION

PRECISION PRODUCTS

Using Geospatial Technology in Your Organization

Jeff Clark & Eric Muncy
Precision Products

Trimble

ESRI

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GLOBAL POSITIONING SYSTEM

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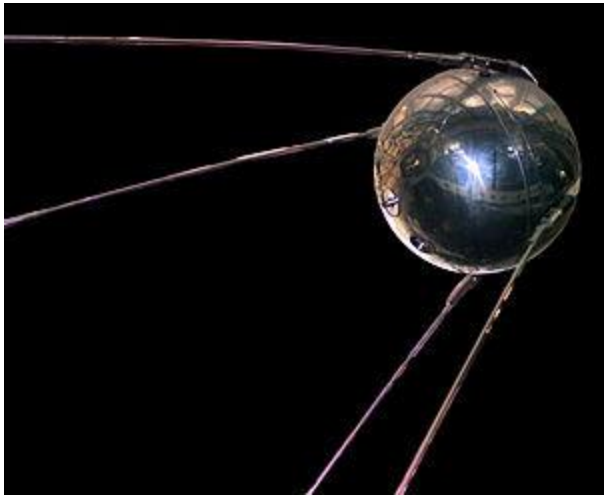
Sputnik

- Launched in 1957 by USSR
- First man made satellite to send radio signals
- Lived for about 3 months



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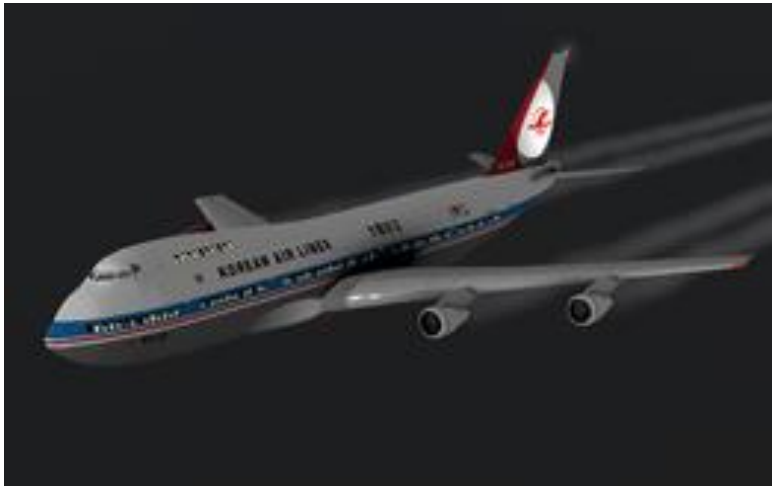
US Military

- First used in the 1960s
- For non-civilian uses

Korean Flight 007

- Shot down September 1983 in Russian Air Space
- Presidential Order was signed to make GPS available for civilian use



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Selective Availability (SA)

- Degrades the Accuracy. Over 150 ft of inaccuracy
- 2000 – President Clinton ordered SA to switched off.
- Greatly improved consumer grade GPS accuracy

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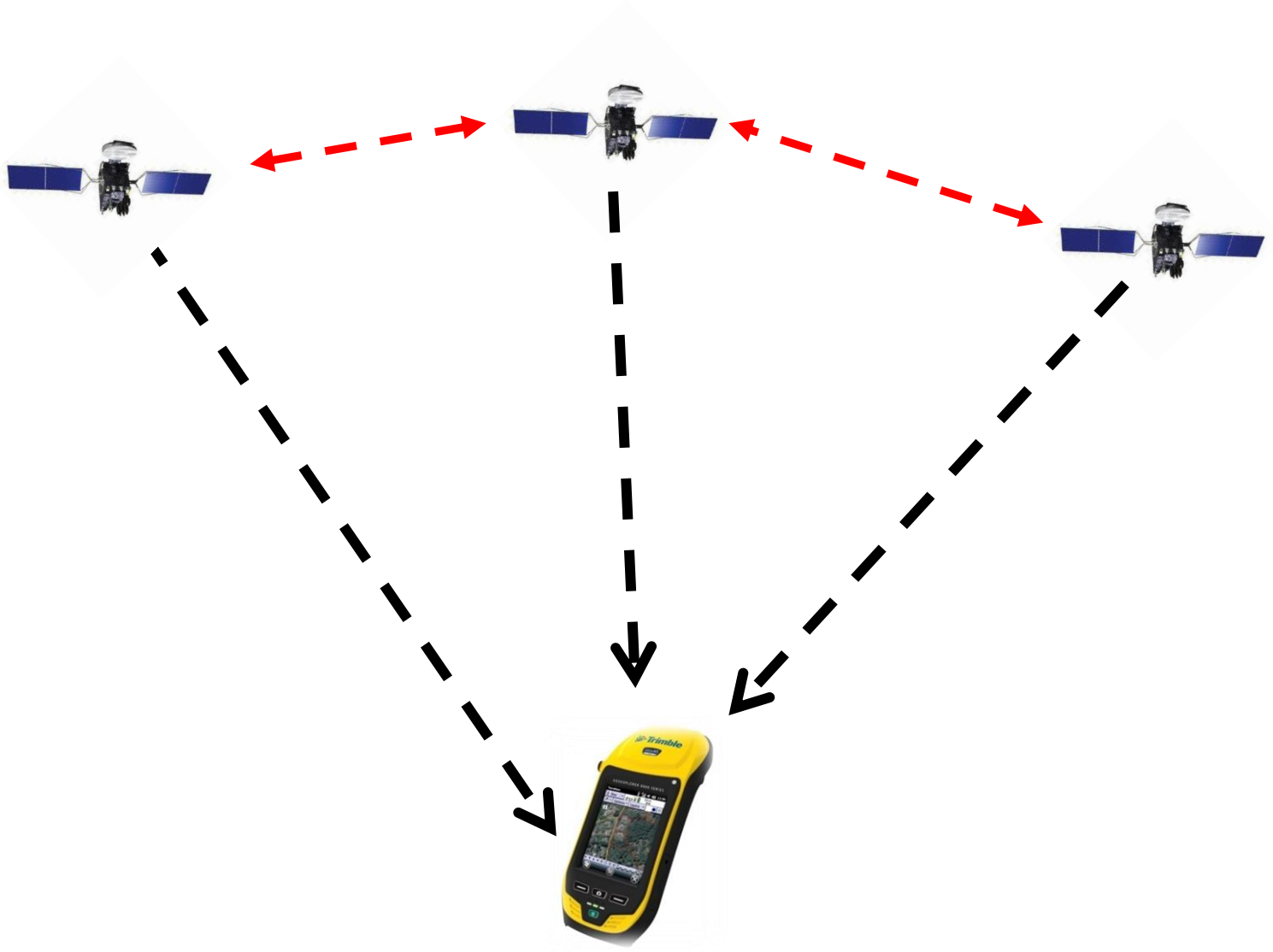

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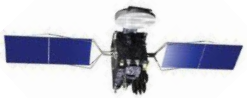

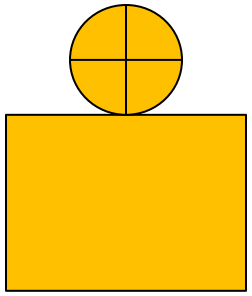

BASE STATION

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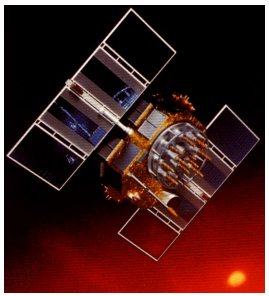
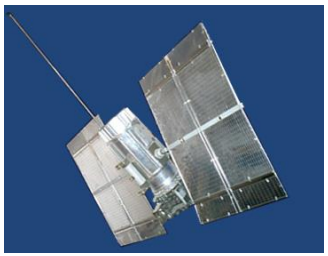
The Global Navigation Satellite Systems (GNSS) Constellations

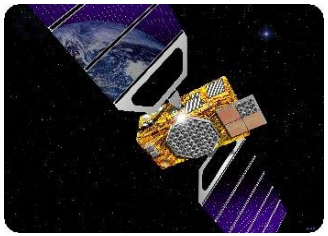
- Four positioning and navigation systems
  - Navstar/GPS – US (over 30 satellites)
  - GLONASS – Russia (over 20 satellites)
  - GALILEO – EU
  - BEIDOU/COMPASS – China



US - GPS



Russia - GLONASS



EU - Galileo

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Different Grades of GPS?

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❖Consumer Grade

- Inexpensive
- 15 to 30 feet accuracy
- Good for general locations
  - Navigation
  - Street Signs
  - Trees
  - Buildings (911)

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- Consumer Grade
- **Mapping Grade**

- 1 inch to 10 feet accuracy
- Digital Clipboard
- Good for more accurate locations
  - Hydrants
  - Manholes
  - Roads

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- Consumer Grade
- Mapping Grade
- **Survey Grade**

- Centimeter accurate
- Good for the accurate locations related to:
  - Control networks
  - Land boundaries
  - Topographic & Engineering Surveys

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New Geo-Spatial Technology

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Landfill Gas Surface Emission Monitoring

Advanced Portable Flame Ionization Detection for SEM Monitoring

SiteFID monitoring software with Rugged Handheld

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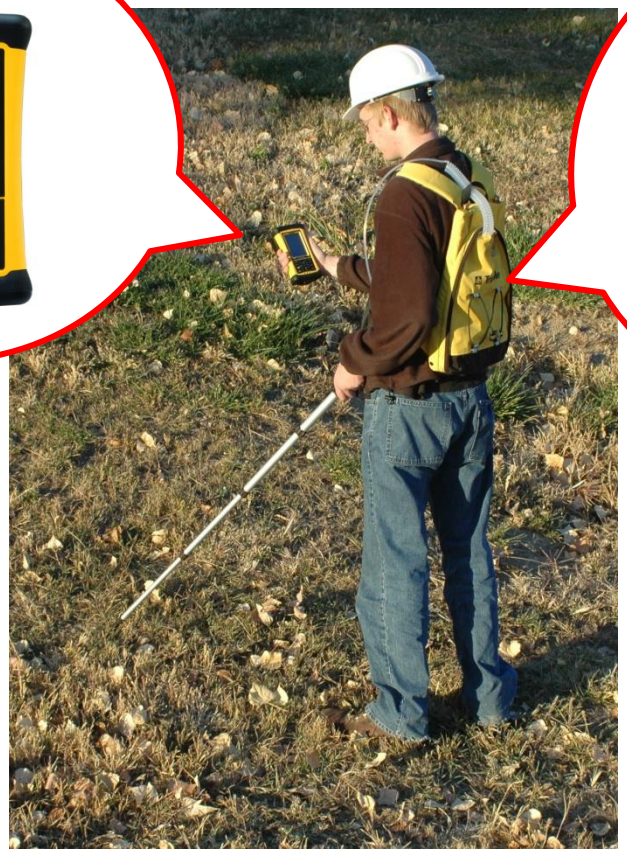
SiteFID Configuration

Leverages advanced air monitoring with superior positioning technology



Nomad Data collector with GPS and wireless Bluetooth connection

SiteFID instrument carried in backpack with attached wand

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Heavy Machine GPS Systems

- Machine Control System

- Grade Control System

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UAV

- Unmanned Aerial Vehicle
- High-Accuracy (5cm / 2 in)
- High-Resolution Images
- 3D Surface Model
- Inspections (Towers, Cross Country, etc.)

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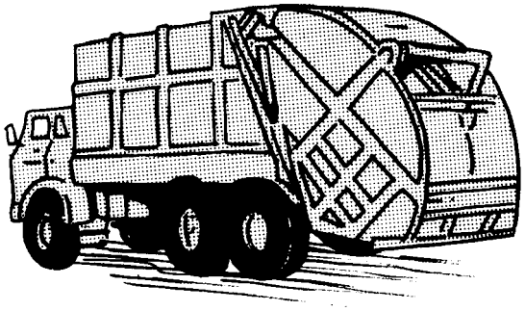
Field Service Management

- Shows vehicles in Real-Time GPS Positioning
- Notification of vehicles locations
- Assign Tasks to nearest vehicle
- Tracks vehicle maintenance cycles, fault codes, driving conditions
- Documentation through Reports and Logs



“Image Rover”

- Hardware
- Software
- Control Points

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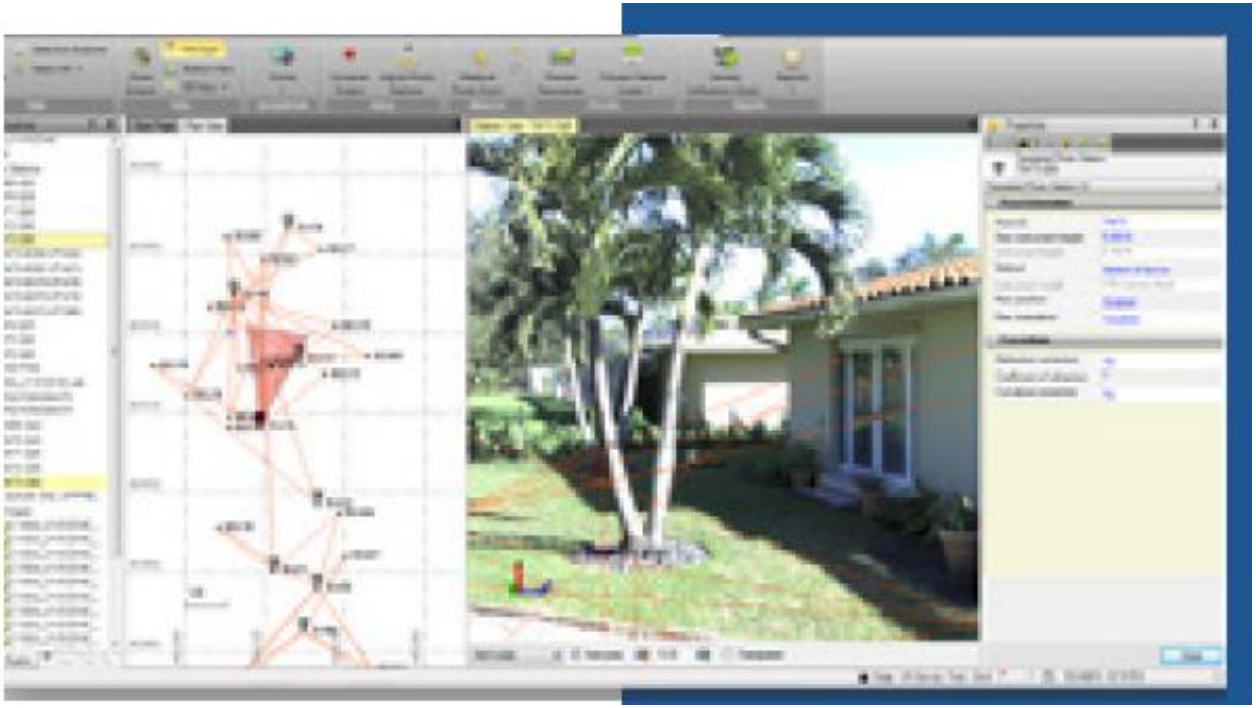

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Terrestrial Scanner

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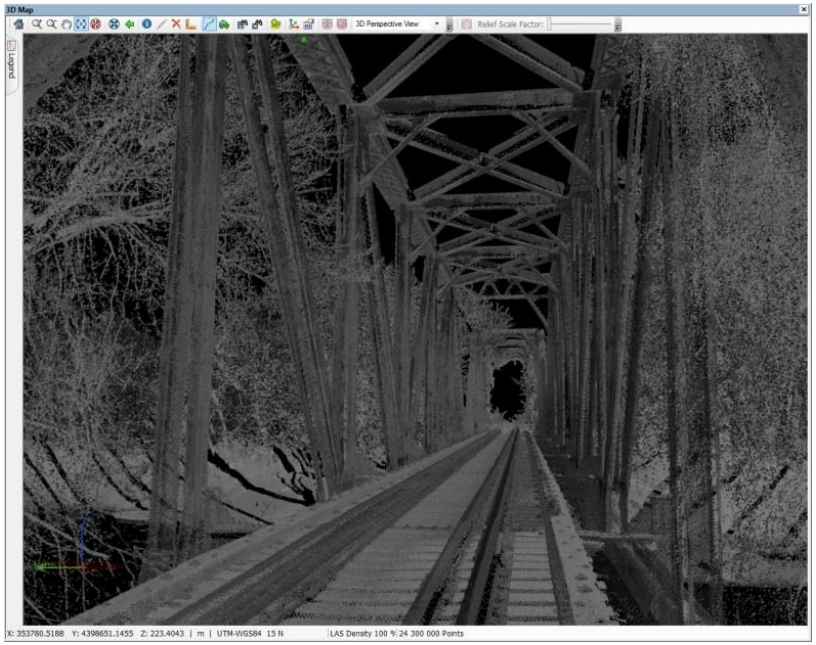
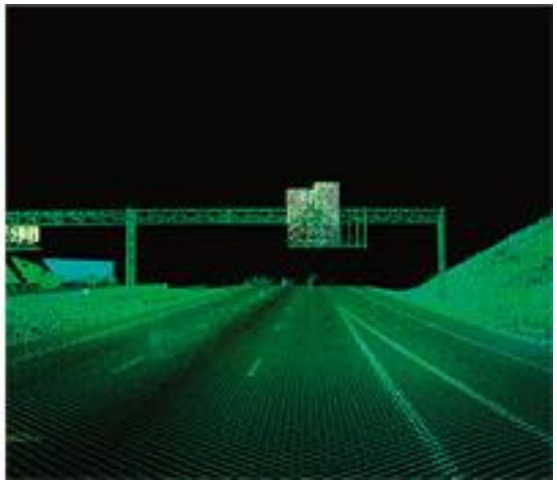
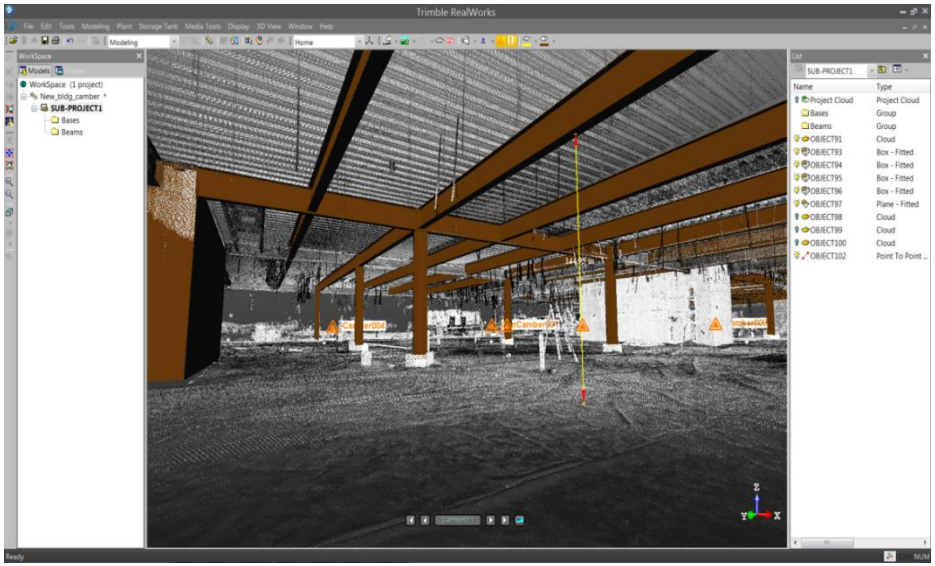




Scanning

- Revolutionary and versatile scanning solution
  - Compact / Lightweight
  - Efficient
  - Economical
  - Ease of Use



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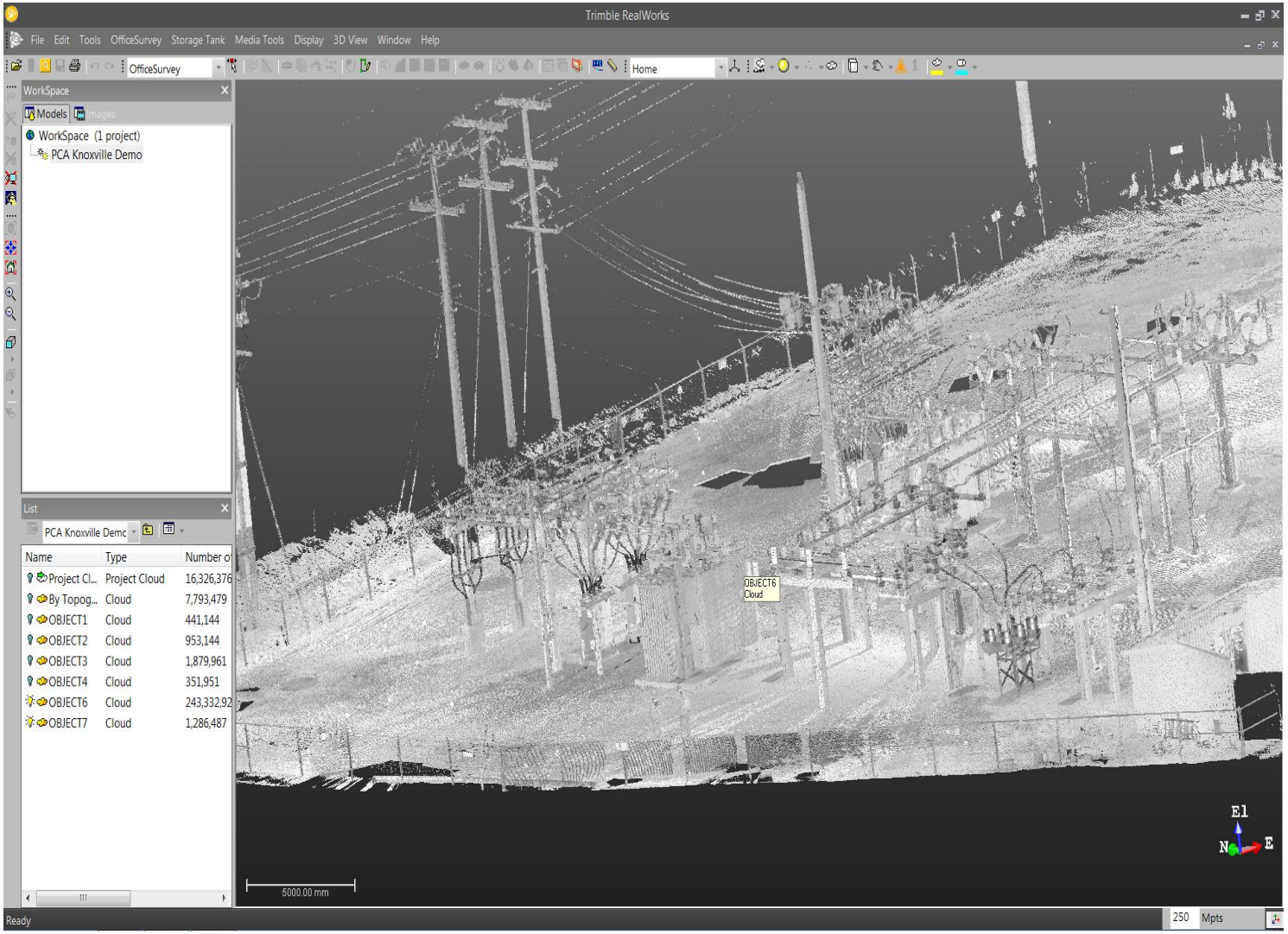

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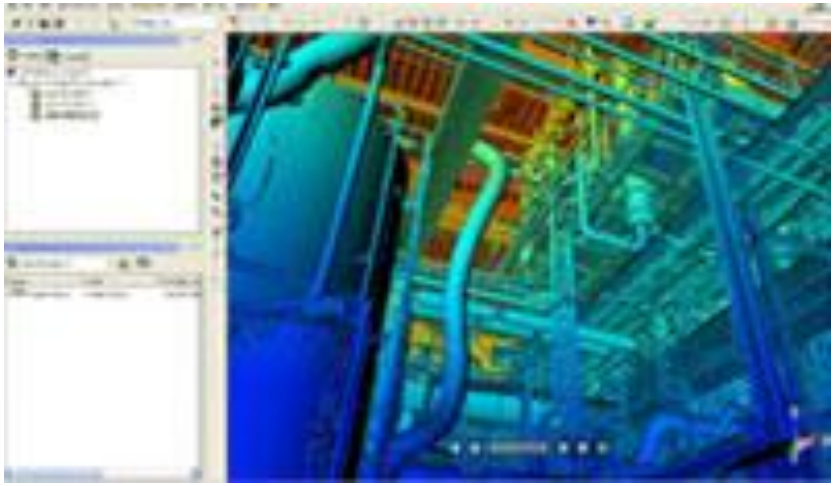

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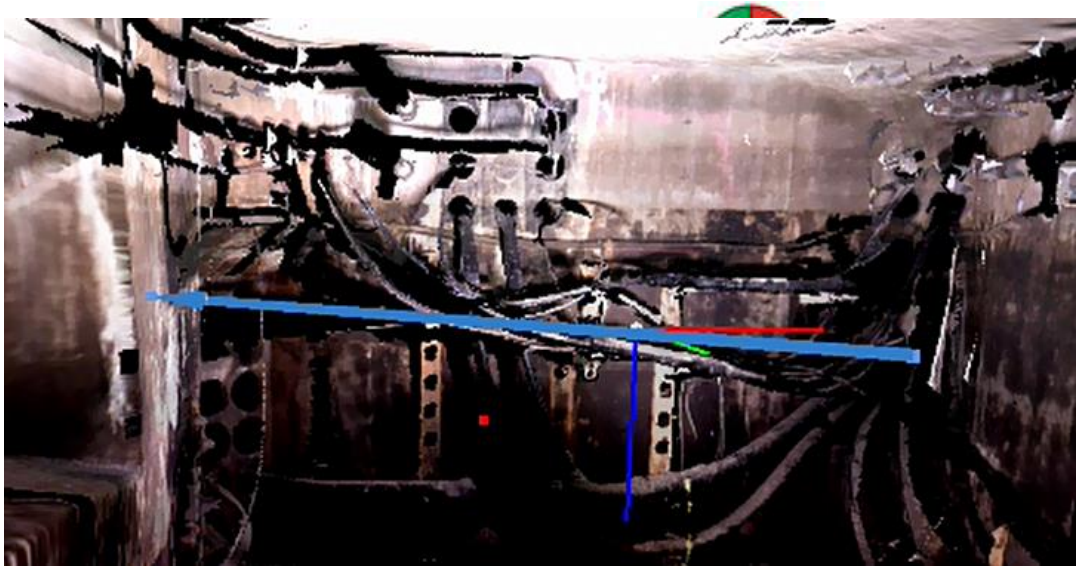

BYOD

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- BYOD – Bring Your Own Device
- Cloud Base / Own Server
- Setup / Field Use
- Using your own data
- Accuracy of GPS

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Questions??